DOCUMENT RESUME

ED 473 559 CG 032 217

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|---|---|
| AUTHOR | Menard, Scott |
| TITLE | Short- and Long-Term Consequences of Adolescent Victimization. OJJDP Youth Violence Research Bulletin, February 2002. |
| INSTITUTION | Department of Justice, Washington, DC. Office of Juvenile Justice and Delinquency Prevention. |
| SPONS AGENCY | Centers for Disease Control and Prevention (DHHS/PHS), Atlanta, GA. |
| REPORT NO | NCJ-191210 |
| PUB DATE | 2002-02-00 |
| NOTE | 18p. |
| CONTRACT | MH27552;78-JN-AX-003;1999-JN-FX-K006 |
| AVAILABLE FROM | For full text: www.ncjrs.org/pdffiles1/ojjdp/ 191210.pdf. |
| PUB TYPE | Information Analyses (070) -- Reports - Research (143) |
| EDRS PRICE | EDRS Price MF01/PC01 Plus Postage. |
| DESCRIPTORS | *Adolescents; Behavior Problems; Delinquency; Mental Health; *Predictor Variables; *Victims of Crime |
| IDENTIFIERS | *Consequences; *Victimization |

ABSTRACT

Being a victim of crime is a relatively common experience for both adolescents and adults. However, victimization is more widespread among adolescents, and its relationship to various problem outcomes tends to be stronger among adolescent victims than adult victims. The study described in this Bulletin uses data from the National Youth Survey to examine the consequences of adolescent victimization. It focuses on how being a victim of crime during adolescence affects the likelihood of certain negative outcomes in adulthood, including voluntary behaviors (e.g., committing crime, using illicit drugs) and involuntary outcomes (e.g., mental health problems). The Bulletin begins with an overview of the research literature on the consequences of criminal victimization. It then describes the methodology, findings, and conclusions of the current study. (Contains 39 references and 6 tables.) (Author)

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ED 473 559

# *Short- and Long-Term Consequences of Adolescent Victimization*

## OJJDP Youth Violence Research Bulletin February 2002

by
Scott Menard

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CG032217

U.S. Department of Justice
Office of Justice Programs
*Office of Juvenile Justice and Delinquency Prevention*

OJJDP Youth Violence Research Bulletin

Office of Juvenile Justice and Delinquency Prevention

CDC Centers for Disease Control and Prevention

February 2002

# Short- and Long-Term Consequences of Adolescent Victimization

**Scott Menard**

Being a victim of crime is a relatively common experience for both adolescents and adults. However, victimization is more widespread among adolescents, and its relationship to various problem outcomes tends to be stronger among adolescent victims than adult victims. The study described in this Bulletin uses data from the National Youth Survey to examine the consequences of adolescent victimization. It focuses on how being a victim of crime during adolescence affects the likelihood of certain negative outcomes in adulthood, including voluntary behaviors (e.g., committing crime, using illicit drugs) and involuntary outcomes (e.g., mental health problems).

The Bulletin begins with an overview of the research literature on the consequences of criminal victimization. It then describes the methodology, findings, and conclusions of the current study.

## Overview of the Research Literature on Consequences of Criminal Victimization

Victims of crime may experience one or more of four important types of impacts: physical or medical, financial, behavioral, and cognitive or emotional. Much of the research on the consequences of criminal victimization is based on data from the National Crime Victimization Survey (NCVS), previously known as the National Crime Survey. (For more information on the NCVS, see the sidebar on page 2.)

### Physical and Medical Costs

Regarding physical consequences, Blumberg (1979) reported that approximately 25 percent of victims of personal crimes (which include violent crimes and personal theft) experienced some injury and that 10 percent of all victims (or about 40 percent of victims with some injury) were seriously injured. Klaus (1994) estimated that 31 percent of all victims of violent crimes sustained some physical injury and that approximately 18.5 percent required medical care. Miller and colleagues (1996) estimated that in the United States, 3 percent of all medical spending and 14 percent of injury-related medical spending could be attributed to violent crime.

### Financial Costs

Miller and colleagues (1996) also estimated that direct property losses experienced by victims of crime may be as much as $750 per robbery, $270 per larceny, $970 per burglary, and $3,300 per motor vehicle theft, counting both attempted and successful crimes. Additional costs of victimization estimated by Miller and colleagues include costs associated with productivity losses, medical care, ambulance service,

### About This Series

The Surgeon General's report on youth violence, released in January 2001, notes that youth violence is a serious public health issue that affects millions of children and their families. A shared commitment to ending youth violence has led to a strong partnership between the Office of Juvenile Justice and Delinquency Prevention and the Centers for Disease Control and Prevention's National Center for Injury Prevention and Control. The partnership is dedicated, in part, to promoting the Blueprints for Violence Prevention initiative, which identifies and disseminates information nationwide about violence prevention and intervention programs that have been found effective.

The Youth Violence Research Bulletin Series is the most recent endeavor in the OJJDP–CDC partnership. The series presents the latest research findings on critical topics related to youth violence, including gangs, firearms, suicide prevention, and the impact of violence on youth. The Bulletins discuss research in a way that makes it relevant to both the public health and juvenile justice fields and are written in a style that is accessible to all readers, including practitioners, service providers, parents, and policymakers. By focusing on the issue of youth violence and emphasizing the public health benefits of reducing violence among youth and within families, OJJDP and CDC hope to help all children have the opportunity to lead safe and productive lives.

mental health care, police and fire services, social services, and victim services—for a total tangible "loss per crime" of as much as $5,100 for rape, $1,550 for nonfatal assault other than sexual assault or child abuse ($4,800 for assaults with injury, $4,600 for assaults on children under age 12, $1,200 for domestic assaults, and $200 for assaults without injury), $2,300 for robbery, $370 for larceny, $1,100 for burglary, and $3,500 for motor vehicle theft.

Miller and colleagues also attempted to assign dollar amounts to "intangible" or quality-of-life losses. These amounts were based on considerations including jury awards to compensate victims for pain and suffering (excluding punitive damages) and estimates of the dollar amount people are willing to pay to reduce their risk of different types of victimization. Including intangible costs, the total costs of victimization were estimated to be $87,000 for rape, $9,400 for other assaults, $8,000 for robbery, $370 for larceny (the same as without intangible costs), $1,400 for burglary, and $3,700 for motor vehicle theft.

The overall estimates of costs of crime arrived at by Miller and colleagues are comparable to, although perhaps higher than, estimates from other studies. For example, Klaus (1994) estimated the cost per crime to be $234 for rape, $555 for robbery, $124 for assault, $221 for larceny, $834 for burglary, and $3,990 for motor vehicle theft. As noted by Laub (1997), data from the 1992 NCVS indicate that 35 percent of all personal crimes and 24 percent of all household crimes involved losses of less than $50 and only 12 percent of personal crimes and 24 percent of household crimes resulted in losses greater than $500 (Bureau of Justice Statistics, 1994).

### The National Crime Victimization Survey

The National Crime Victimization Survey (NCVS) collects data annually on selected nonlethal offenses with identifiable victims. The offenses covered include forcible rape, robbery, aggravated assault, simple assault, personal larceny with contact (e.g., having one's pocket picked), personal larceny without contact (e.g., having one's belongings stolen from a public place), household burglary (having one's home or vehicle broken into for purposes of stealing something or committing another felony), household larceny (having something stolen from one's home or property without forcible entry), and motor vehicle theft.

Although assault should, in principle, include domestic violence, research indicates that the lack of specific questions about domestic violence apparently results in underreporting of these crimes in the NCVS (Mihalic and Elliott, 1997). In earlier years, the survey did not specifically ask about rape and had a similar underreporting problem for that offense (see Eigenberg, 1990).

For more information about the NCVS, visit www.icpsr.umich.edu/NACJD/NCVS/index.html.

## Subsequent Offending

The relationship between victimization and subsequent offending is well established in the victimization literature. NCVS data[1] indicate that the characteristics of victims of crime parallel the characteristics of persons arrested for crime (Hindelang, Gottfredson, and Garofalo, 1978; Karmen, 1990). Additional research (Ageton, 1981; Esbensen and Huizinga, 1990; Jensen and Brownfield, 1986; Lauritsen, Sampson, and Laub, 1991; Sampson and Lauritsen, 1990; Thornberry and Figlio, 1974) confirms that the same individuals tend to be both victims and offenders. It is unclear from this research, however, whether this apparent connection between victimization and offending represents the influence of victimization on offending, the influence of offending on victimization, mutual interactive influences, or a spurious relationship in which victimization and offending coincidentally share the same origins.

## Mental Health Problems and Substance Use

Much of the early research on the mental health consequences of victimization focused on general distress or fear rather than specific symptoms of depression, anxiety, or posttraumatic stress disorder (PTSD). However, studies that have examined specific psychological disorders have consistently found positive correlations between PTSD and sexual assault (Resick and Nishith, 1997; Kilpatrick et al., 1987), aggravated assault and robbery (Kilpatrick et al., 1987), and victimization in general and violent victimization in particular (Berton and Stabb, 1996; Boney-McCoy and Finkelhor, 1995; Lurigio, 1987; Norris, Kaniasty, and Thompson, 1997). In a sample of adolescents ages 10–16, Boney-McCoy and Finkelhor (1995) found that sexual assault victimization and victimization by other forms of assault resulted in similar levels of PTSD. Studies have also associated criminal victimization with anxiety, depression, and a wide range of symptoms of psychological dysfunction (Resick and Nishith, 1997). In addition, victimization has been associated with use of marijuana and other illicit drugs and with drug dependence (Resick and Nishith, 1997), but questions still exist about which is the cause and which is the effect in the studies reporting these results.

Analyzing a general population sample that included both victims of crime and nonvictims, Norris and colleagues (1997: 149) found that criminal victimization "was associated not with a specific symptom profile but rather with a pervasive elevation of symptoms across domains" of depression, somatization (multiple, unexplained physical complaints), hostility, anxiety, phobic anxiety, fear of crime, and avoidance behavior. The most severe effects of victimization, however, may be short lived. As noted by Resick and Nishith (1997:31):

> In summary, most rape victims, immediately after the assault, experience acute reactions that last several months. By 3 months postassault, there is some stabilization in the initial symptoms. However, some victims continue to experience chronic problems for an indefinite time in the areas of fear/anxiety, depression, social adjustment, sexual functioning, and self-esteem.

(For corroboration with respect to sexual assault and other offenses, see also Kilpatrick et al., 1987; Lurigio, 1987; and Norris, Kaniasty, and Thompson, 1997.) Norris and colleagues (1997) found that the persistence of victims' symptoms over time was aggravated by subsequent exposure to victimization.

It is unclear from the existing literature whether researchers should expect adolescent victimization to affect mental health, substance use, and problem substance use. If, as suggested by much of the literature, the psychological impact of victimization is ephemeral, people who

experience victimization and its effects during adolescence may no longer show the effects by the time they become adults. However, to the extent that victimization tends to recur, and given the evidence presented by Menard (2000) that adolescent victims of crime are at increased risk of experiencing victimization during adulthood, researchers may find some carryover in the consequences of victimization from adolescence to adulthood. In addition, because substance use tends to be a relatively unchanging behavior pattern (Elliott, Huizinga, and Menard, 1989), and to the extent that it is a consequence of victimization in adolescence, this problem, when present in adolescent victims, may persist into adulthood. Tentatively, then, researchers would expect to find a higher incidence of adult mental health problems (particularly PTSD, which both logic and empirical research suggest is most closely related to victimization) and adult substance use or problem use among individuals who were victims of crime (particularly of violent crime) during adolescence.

## Methodology of the Current Study

### Objectives

This Bulletin examines how adolescent victimization affects victims' lives during adolescence and adulthood. The study is an "inventory of effects" (see Blalock, 1969:41) in that it emphasizes a single cause and traces its multiple effects. The research conducted for this Bulletin investigates four questions related to adolescent victimization:

- What are the immediate effects on the victim, in terms of physical injuries and financial losses?
- How is adolescent victimization related to certain voluntary problem behaviors and involuntary problems in both adolescence and adulthood? (Voluntary problem behaviors include illicit drug use, perpetration of violent and property crimes, and perpetration of domestic violence. Involuntary problems include mental health problems and further victimization, including domestic violence victimization.)[2]
- Is adolescent victimization related to certain specific problems in adulthood, regardless of whether the same problems were present in adolescence?
- How does adolescent victimization affect adult life as measured by a general index of success?

The research goes beyond simply correlating adolescent victimization with subsequent problems. It introduces controls for prior problems, so the true impact of victimization can be determined, and satisfies the three usual criteria for inferring a causal relationship between one variable and another (Menard, 1991): association, time ordering (by relating adolescent victimization to adult problem outcomes), and control for spuriousness (by accounting for other adolescent problems as possible predictors of the corresponding adult problem outcomes). The analysis may omit some variables that could conceivably affect the relationship between adolescent victimization and subsequent problems, but such variables are likely to be captured in the study's measure of prior problems. At most, such an omission would raise the question of whether the influence of adolescent victimization on adult problems is direct or indirect—it would not call into question the existence of the influence.

### Sample

Data for the research presented in this Bulletin are taken from all nine waves (interview cycles) of the National Youth Survey (NYS), a prospective, longitudinal study of a probability sample of Americans who were 11–17 years old in 1976 (the first year for which data were collected) and 27–33 years old in 1992 (the most recent year for which data are available).[3] From 1976 to 1980 (waves 1–5 of the survey), data were collected annually. After 1980, data were collected at 3-year intervals, beginning with 1983 (wave 6) and continuing to 1992 (wave 9). The NYS sample

#### The National Youth Survey Sample

The National Youth Survey (NYS) used a probability sample of households in the continental United States, based on a self-weighting, multistage, cluster sampling design. The sample was drawn in late 1976 and contained an estimated 2,360 eligible youth born between 1959 and 1965, of whom 1,725 (73 percent) agreed to participate in the study, signed informed consents, and completed the interviews in the initial wave of the survey. Overall completion rates were more than 94 percent of the original respondents for waves 2 and 3, 87 percent for waves 5 and 6, 80 percent for wave 7, 83 percent for wave 8, and 78 percent for wave 9. A comparison of the age, gender, and race/ethnicity of individuals who participated in the survey and of those who were eligible but did not participate indicated that the loss rate from any particular age, gender, or racial/ethnic group was proportional to that group's representation in the population. Differences in the sample at wave 1 and subsequent waves with respect to social and demographic characteristics, illegal behavior, and substance use were small and not statistically significant. With respect to sociodemographic characteristics, NYS respondents at each wave appear to be representative of the total U.S. population born between 1959 and 1965, as established by the U.S. Census Bureau. In particular, the NYS sample is representative of the U.S. population in this age range with respect to gender, race/ethnicity, and rural/suburban/urban residence.

Questions about violent victimization were asked in all nine waves of NYS interviews (for the years 1976–80, 1983, 1986, 1989, 1992); however, in the second year (1977), for administrative reasons, 57 percent of the respondents were not asked about property victimization. This essentially divides the NYS sample into two subsets, one with and one without potentially complete data on property victimization for the full nine waves. In addition, for some individuals, data for one or more years are missing. This combination of systematically missing data for property victimization at wave 2 plus sporadically missing data for some respondents allows two possible approaches to the analysis of the data. One approach, known as "pairwise elimination," uses all available cases in each year, so that calculations of the prevalence and frequency of victimization and correlations between victimization and other problems are based on a variable number of cases. The second approach, known as "listwise elimination," uses only complete cases, i.e., cases with data for all variables in all years used in the analysis. The two approaches produce similar results. Consistent with general practice, the present analysis uses pairwise elimination in the calculation of prevalence, frequency, and correlation coefficients (tables 1–3) but listwise elimination in the logistic regression analysis of the influence of adolescent victimization on adult outcomes (tables 4–6).

allowed researchers to follow the same individuals, who collectively are representative of the total U.S. population in their age group, from their adolescence in the 1970s well into their adult years in the 1990s. (For additional details on the NYS sample, see the sidebar on page 3.)

## Measurement

**Types of victimization.** The analysis includes two types of victimization: property and violent. Property victimization includes having a vehicle (car, motorcycle, or bicycle) stolen; having items stolen from a vehicle, including packages, vehicle parts, and bicycle locks; having items such as clothing or other possessions stolen from a public place; experiencing vandalism (deliberate damage of one's property, such as slashing tires or ripping up books); and having a pocket picked or purse or wallet snatched (or experiencing an attempt to do so).[4] Violent victimization includes having something taken directly by force or threat (or experiencing an attempt to do so); being beaten up or threatened with a beating;[5] being attacked with a weapon such as a knife, gun, bottle, or chair;[6] and being raped or otherwise sexually attacked (or experiencing an attempt to do so).

**Prevalence and frequency.** The analysis considers both the prevalence and the frequency of victimization. Prevalence refers to whether an individual has been a victim of crime during a given measurement period, and frequency refers to how many times the individual has been a victim during that period. Although for some purposes the analysis considers annual prevalence and frequency of victimization, it focuses on the cumulative prevalence and frequency over the full 17 years covered by the NYS.

**Measures of problem outcomes.** The analysis uses the following measures of problem outcomes (in addition to subsequent criminal victimization):

- Nondomestic violent offending (felony assault).[7]
- Serious property offending (felony theft).
- Serious domestic violence offending.[8]
- Serious domestic violence victimization.[9]
- Marijuana use.
- Polydrug use.
- Problem drug use.[10]
- Mental health problems.[11]

The analysis considers measures of problem outcomes for both adults and adolescents. The measures as applied to adults are described in greater detail in the sidebar on this page. In some cases, it was not possible to use the same problem outcome measures for adolescents as for adults; endnotes 9–11 explain how the analysis handles such cases.

**Sociodemographic factors.** In addition to examining the problem outcomes noted above, the study considers four sociodemographic factors: age in 1976 (11, 12, or 13)—essentially a control for any effects related to age cohort; gender; race/ethnicity (majority or minority); and socioeconomic background (parents' socioeconomic status in 1976), as measured by the Hollingshead two-factor index (Hollingshead and Redlich, 1958).

## Analysis

**Age cohorts.** The analysis is limited to the three youngest NYS age cohorts. It measures adolescent problems in respondents who were ages 11–17 during 1976–80 and adult problems in the same respondents when they were ages 21–29 during 1986–92. The measurement of adolescent problems encompasses respondents who were both young enough not to have experienced certain problems (especially illicit substance use and mental health problems) and old enough to have had the opportunity to experience all of the problems. At the point of analysis for adult problems, most respondents had made the transition from school to the labor market. An interval of at least 4 years of age (from 17 to 21) and 6 calendar years (from 1980 to 1986) thus separates the measurements of adolescent and adult problems.

**Mental health problems.** Adult mental health problems are analyzed only for 1992, because that is the only year for which the NYS measured specific mental health problems other than depression (see endnote 11). In particular, 1992 is the

### Adult Problem Measures

- **Nondomestic violent offending:** Attacking someone with intent to seriously injure or kill the person, participating in gang fights, having or attempting to have sex with someone against his or her will, or taking or attempting to take something from someone by force or threat of force. In wave 9, battery (hitting or beating someone so badly that the person probably will need a doctor) replaced gang fighting. This is the NYS felony assault scale; the **nondomestic violent victimization** scale contains similar measures.
- **Serious property offending:** Stealing or attempting to steal something worth more than $50, stealing or attempting to steal a motor vehicle or a bicycle, breaking into a house or car to steal something or to look around, or buying stolen goods. This is the NYS felony theft scale; the **serious property victimization** scale contains similar measures.
- **Serious domestic violence offending:** Kicking, biting, or hitting one's spouse or partner with one's fist; hitting or trying to hit one's spouse or partner with something; beating up one's spouse or partner; threatening one's spouse or partner with a knife or gun; or using a knife on or firing a gun at one's spouse or partner. Measures for **serious domestic violence victimization** parallel the measures for serious domestic violence offending.
- **Marijuana use:** Use of marijuana or hashish.
- **Polydrug use:** Use of amphetamines, barbiturates, cocaine, hallucinogens, or heroin. (Use of any of these drugs almost always occurs in combination with marijuana and alcohol use.)
- **Problem drug use:** Presence of problems resulting from illicit drug use, including interpersonal relationships, fights, absence from work, or trouble with the police.
- **Mental health problems:** Indications of clinical anxiety, depression, obsessive-compulsive behavior, or schizophrenia, based on the *Diagnostic Interview Schedule* (Robins et al., 1981).

Additional descriptions of these measures may be found in Elliott, Huizinga, and Menard (1989).

only year for which the NYS measured PTSD. The 1992 measures, however, include both past-year prevalence and ever-prevalence of anxiety, depression, and PTSD.

**Logistic regression models.** To examine the relationship of victimization to other problems as the sample develops from adolescence to adulthood, the analysis uses logistic regression models (Hosmer and Lemeshow, 1989; Menard, 1995) to explore the prevalence of specific problems in adulthood. In each model, the dependent variable is the prevalence of an adult problem outcome, and the independent variables (i.e., the possible predictors of that problem) are the prevalence of the same (or comparable) problem during adolescence, the prevalence of violent victimization and property victimization during adolescence,[12] and the sociodemographic variables mentioned earlier. The analysis focuses on the prevalence of problem behaviors and conditions in adolescence and adulthood rather than their frequency (see explanation of prevalence and frequency on page 4). This focus ensures consistency across the different problem measures. It also reflects the author's primary interest in exploring the continuity of problem behaviors and conditions from adolescence to adulthood (i.e., whether a problem persists rather than how many times it occurs).

# Findings

## Problem Outcomes in Adolescence and Adulthood: Summary of Prevalence and Odds

Table 1 shows the prevalence and odds of each problem outcome during adolescence and adulthood. Prevalence refers to the probability of experiencing a particular outcome. Odds compare the probability of experiencing an outcome with the probability of not experiencing it; mathematically, odds are equal to p/(1–p) (prevalence divided by 1 minus the prevalence). For example, the prevalence and odds of violent victimization during adolescence are 0.683 and 2.155 (0.683/[1–0.683]), respectively. This means that almost 7 out of 10 sample members were victims of a violent crime when they were adolescents and that the odds of being a victim of a violent crime during adolescence are a little more than 2 to 1. In contrast, the prevalence and odds of violent victimization during adulthood are much lower—only 0.353 and 0.546, respectively. Table 1 shows that, except for marijuana and polydrug use, the prevalence of the problem outcomes is lower during adulthood than during adolescence.

## Physical and Financial Consequences

Table 2 (pages 6–7) presents information on the physical and financial consequences of the most recent victimization incidents reported by NYS respondents in 1989 and 1992, when they were 24 to 33 years old. (Data from the 1989 and 1992 waves were selected for analysis because these two waves provide the most extensive information about respondents' victimization experiences.) Table 2 includes information for specific offenses about the presence of firearms or other weapons, the extent of physical injury (for violent

**Table 1: Adolescent and Adult Outcome Measures—Probabilities**

| Problem Outcome | Prevalence | Odds |
|---|---|---|
| **Violent offending (felony assault)** | | |
| Adolescent | 0.328 | 0.488 |
| Adult | 0.106 | 0.119 |
| **Property offending (felony theft)** | | |
| Adolescent | 0.232 | 0.302 |
| Adult | 0.110 | 0.124 |
| **Marijuana use** | | |
| Adolescent | 0.441 | 0.789 |
| Adult | 0.466 | 0.873 |
| **Polydrug use** | | |
| Adolescent | 0.173 | 0.209 |
| Adult | 0.300 | 0.429 |
| **Problem drug use** | | |
| Adolescent | NA | NA |
| Adult | 0.218 | 0.279 |
| **Serious domestic violence perpetration** | | |
| Adolescent | NA | NA |
| Adult | 0.208 | 0.263 |
| **Serious domestic violence victimization** | | |
| Adolescent | NA | NA |
| Adult | 0.266 | 0.362 |
| **Violent victimization** | | |
| Adolescent | 0.683 | 2.155 |
| Adult | 0.353 | 0.546 |
| **Property victimization** | | |
| Adolescent | 0.831 | 4.917 |
| Adult | 0.625 | 1.667 |
| **Adolescent mental health problems** | 0.223 | 0.287 |
| **Adult mental health problems** | | |
| **Anxiety** | | |
| Ever | 0.054 | 0.057 |
| 1992 | 0.033 | 0.034 |
| **Depression** | | |
| Ever | 0.137 | 0.159 |
| 1992 | 0.092 | 0.101 |
| **Posttraumatic stress disorder** | | |
| Ever | 0.094 | 0.104 |
| 1992 | 0.047 | 0.049 |

Note: Prevalence refers to the probability of experiencing an outcome. Odds compare the probability of experiencing an outcome with the probability of not experiencing the outcome. See discussion of prevalence and odds on this page.

NA = not applicable.

offenses), and the dollar value of lost or damaged property (for property offenses). Even though NYS data (like NCVS data) include both completed offenses and unsuccessful attempts, the offenses listed in table 2 generally are nontrivial events that would result in police intervention if detected by or reported to the police.

Table 2 shows that in most instances of sexual assault (17, or about 90 percent of the 19 incidents reported), no weapon was used; however, a firearm was used in 1 incident and a weapon other than a firearm was used in another. Sexual assault victims suffered some injury in about two-thirds (12) of the 18 incidents with follow-up data on injury; the injury was serious in 2 incidents. For aggravated assault, a firearm was used in one of every five incidents, and other weapons were involved in nearly all the rest. Most assaults were unsuccessful, in the sense that no injury resulted; however, in about 15–20 percent of the incidents, the victim was seriously injured. In addition, the distribution of injury outcomes for aggravated assault appears to be statistically "bimodal" (symmetrical, with two predominant peaks)—the outcome tends to be either no injury at all or serious injury. For battery, the rate of serious injury is similar to that of aggravated assault, but the percentage of incidents with no injury is lower, and the percentage of incidents with some injury is more similar to the percentage with serious injury. In most incidents of battery (about 90 percent), no weapon was present.

Robberies typically involved no weapon and no injury but a property loss of more than $100. Most incidents of motor vehicle or bicycle theft and vandalism involved property loss of more than $100 (one-third of motor vehicle thefts involved property loss of more than $1,000), whereas most pickpocket and purse-snatching offenses involved losses of less than $50, and most thefts from a vehicle or public place involved losses of more than $50.

**Comparisons With NCVS.** Overall, the rates of injury reported by NYS respondents are somewhat higher than those reported by NCVS respondents, but the rates of serious injury for NYS respondents, particularly for victims of aggravated assault and battery, are comparable to the percentage of victims needing medical care, as reported for the NCVS by Klaus (1994). NYS estimates of financial loss per offense are consistent with NCVS estimates, with variations that one might expect (e.g., more than half of the NYS pickpocket or purse-snatching victimizations, but fewer than 10 percent of the NYS motor vehicle or bicycle theft victimizations, involved losses of less than $50).

**Table 2: Physical and Financial Consequences of Victimization Incidents, by Offense: 1989 and 1992**

| Offense | Use of Weapon (% of Offenses) | | |
|---|---|---|---|
| | None | Firearm | Other |
| **Sexual assault** | | | |
| ($n$=19)[b] | 89.5 | 5.3 | 5.3 |
| **Aggravated assault** | | | |
| 1989 ($n$=37) | 13.5 | 21.6 | 64.9 |
| 1992 ($n$=33) | 0.0 | 18.2 | 81.8 |
| **Battery** | | | |
| 1989 ($n$=124) | 91.1 | 4.0 | 4.9 |
| 1992 ($n$=106) | 88.6 | 4.8 | 6.6 |
| **Robbery** | | | |
| 1989 ($n$=53) | 81.4 | 8.6 | 10.0 |
| 1992 ($n$=56) | 74.5 | 9.1 | 16.4 |
| **Motor vehicle or bicycle theft** | | | |
| 1989 ($n$=54) | NA | NA | NA |
| 1992 ($n$=70) | NA | NA | NA |
| **Theft from a vehicle** | | | |
| 1989 ($n$=179) | NA | NA | NA |
| 1992 ($n$=161) | NA | NA | NA |
| **Theft from a public place** | | | |
| 1989 ($n$=58) | NA | NA | NA |
| 1992 ($n$=52) | NA | NA | NA |
| **Pickpocket or purse snatching** | | | |
| 1989 ($n$=34) | NA | NA | NA |
| 1992 ($n$=23) | NA | NA | NA |
| **Vandalism (destruction of or damage to property)** | | | |
| 1989 ($n$=166) | NA | NA | NA |
| 1992 ($n$=166) | NA | NA | NA |

## Relationship of Victimization to Other Problems in Adolescence and Adulthood

Table 3 (page 8) presents correlations between being a victim of violent crime and property crime and being involved in other problems, shown separately for adolescents and adults. Both prevalence (whether a respondent had a particular problem) and frequency (the number of times the respondent had the problem) are considered.[13]

The table shows that, for the most part, the prevalence and frequency of violent and property crime victimization are positively and significantly correlated with the prevalence and frequency of the other problems. The major exception is the prevalence of violent victimization in adulthood, which has no significant correlation with most of the other problem measures in adulthood.

Most illegal behaviors are correlated more strongly with violent victimization than with property victimization. The exceptions are polydrug use and problem drug use in adulthood, both of which are more strongly correlated with property victimization than with violent victimization.

Mental health problems in adolescence are clearly more closely correlated with violent victimization than with property victimization. For adults, the only statistically significant correlation with anxiety is that between frequency of violent victimization and ever-prevalence of anxiety. Depression in adults is more closely correlated with violent victimization than with property victimization (except for the nonsignificant correlation between

**Table 2—*Continued***

| Consequences of Offense (% of Offenses) | | | | | | |
|---|---|---|---|---|---|---|
| Injury | | | Dollar Loss | | | |
| None | Minor* | Serious† | <50 | 50–100 | >100 | >1,000‡ |
| 44.4 | 44.4 | 11.1 | NA | NA | NA | NA |
| 78.4 | 0.0 | 21.6 | NA | NA | NA | NA |
| 78.1 | 6.3 | 15.6 | NA | NA | NA | NA |
| 65.0 | 14.6 | 20.3 | NA | NA | NA | NA |
| 69.8 | 14.2 | 16.0 | NA | NA | NA | NA |
| 84.1 | 8.7 | 7.2 | 43.4 | 7.5 | 49.1 | NA |
| 91.1 | 5.3 | 3.6 | 29.7 | 10.8 | 59.5 | NA |
| NA | NA | NA | 7.4 | 16.7 | 75.9 | 31.5‡ |
| NA | NA | NA | 8.2 | 14.2 | 77.6 | 49.0‡ |
| NA | NA | NA | 25.1 | 20.7 | 54.2 | NA |
| NA | NA | NA | 35.2 | 23.3 | 41.5 | NA |
| NA | NA | NA | 43.1 | 19.0 | 37.9 | NA |
| NA | NA | NA | 53.3 | 26.7 | 20.0 | NA |
| NA | NA | NA | 61.8 | 14.7 | 23.5 | NA |
| NA | NA | NA | 73.3 | 13.4 | 13.3 | NA |
| NA | NA | NA | 24.1 | 18.1 | 57.8 | NA |
| NA | NA | NA | 20.9 | 18.3 | 60.8 | NA |

Note: Percentages may not total 100 percent because of rounding.

NA = Not asked for this offense.

* Minor injury includes being knocked down or bruised but excludes more serious injuries.

† Serious injury includes any of the following: being cut or bleeding, unconscious, or hospitalized or in need of medical attention.

‡ Motor vehicle theft only.

§ Data for sexual assault are combined for 1989 and 1992 because of the relatively small number of incidents (19 for the 2 years).

prevalence of violent victimization and past-year prevalence of anxiety). PTSD has no statistically significant correlation with prevalence of violent victimization; however, its strongest correlations are with frequency of violent victimization.

In general, in both adolescence and adulthood, the prevalence correlations between victimization and other problems are less than or equal to the frequency correlations. This indicates that within each of the two life stages, frequency (rather than prevalence) of victimization generally is a better predictor of both prevalence and frequency of other problems.

## Adolescent Risk Factors for Adult Problems

Table 4 (page 9) shows the relationship between being a victim of violent crime and property crime as an adolescent and experiencing various problem outcomes as an adult—i.e., the "developmental comorbidity" of adolescent victimization and adult problems. The table analyzes the prevalence of the following adult problem outcomes: victimization by violent crime and property crime, domestic violence victimization and perpetration, violent offending (felony assault perpetration), property offending (felony theft perpetration), marijuana use, polydrug use, and problem drug use. Table 5 (page 10) presents a similar analysis for adult mental health problems, including anxiety, depression, and PTSD.

The analysis focuses on prevalence rather than frequency, in part because prevalence data are available for all of the problems but frequency data are not (for some problems, only Likert-type scales are available instead of frequency; see endnote 13). In addition, as noted earlier, the present research focuses on whether (rather than how often) adolescent victims of crime experience various problem outcomes in adulthood.

**Violent victimization as a risk factor.** As shown in table 4, violent victimization during adolescence appears to be a risk factor for—and, given the combination of association, time ordering, and control for spuriousness (as discussed on page 3), a cause of—most of the adult problem outcomes measured: violent crime victimization, domestic violence perpetration and victimization, violent and property crime perpetration, and problem drug use. Only two of the adult outcomes in table 4—marijuana use and polydrug use—do not appear to be affected by violent victimization during adolescence.

**Risk factors for adult violent victimization.** Victims of violence in adolescence also tend to be victims of violence in adulthood. The odds of adult violent victimization are more than twice as high for respondents who were victims of violence in adolescence than for those who were not. The odds of adult violent victimization are highest for the youngest age cohort and lowest for the oldest age cohort, probably reflecting the well-known pattern of decreasing victimization with age. The relationship between violent victimization in adulthood and victimization-age interaction in adolescence indicates that the pattern of higher adult victimization for adolescent victims is even more evident for respondents whose adolescent victimization occurred at an older age than for those who were victimized at a younger age. Again, this is consistent with what might be expected, given past research on the relationship between age and victimization.

**Risk factors for adult property victimization.** Predictably, property victimization (rather than violent victimization) during adolescence affects property victimization in adulthood. This finding offers evidence of continuity in victimization from adolescence to adulthood. Less predictably, the

**Table 3: Relationship of Victimization to Other Problems: Adolescents and Adults**

| | Violent Victimization | | Property Victimization | |
|---|---|---|---|---|
| | Prevalence | Frequency | Prevalence | Frequency |
| **Adolescent** | | | | |
| **Felony assault** | | | | |
| Prevalence | 0.23 | 0.41 | 0.16 | 0.28 |
| Log frequency | 0.24 | 0.50 | 0.14 | 0.34 |
| **Felony theft** | | | | |
| Prevalence | 0.23 | 0.37 | 0.14 | 0.33 |
| Log frequency | 0.19 | 0.42 | 0.12 | 0.34 |
| **Marijuana use** | | | | |
| Prevalence | 0.15 | 0.24 | 0.10 | 0.19 |
| Log frequency | 0.12 | 0.26 | 0.11 | 0.20 |
| **Polydrug use** | | | | |
| Prevalence | 0.09 | 0.24 | 0.11 | 0.18 |
| Log frequency | 0.08 | 0.25 | 0.07 | 0.17 |
| **Mental health problems** | | | | |
| Prevalence | 0.10 | 0.22 | (–0.02) | 0.06 |
| Parent assessment | 0.16 | 0.16 | (0.06) | 0.12 |
| **Adult** | | | | |
| **Domestic violence** | | | | |
| Victimization prevalence | 0.15 | 0.43 | 0.19 | 0.16 |
| Perpetration prevalence | (0.05) | 0.29 | (0.04) | (0.04) |
| **Felony assault** | | | | |
| Prevalence | (0.06) | 0.36 | 0.11 | 0.10 |
| Log frequency | (0.07) | 0.36 | 0.11 | 0.07 |
| **Felony theft** | | | | |
| Prevalence | (0.02) | 0.18 | 0.21 | 0.19 |
| Log frequency | (0.03) | 0.20 | 0.17 | 0.18 |
| **Marijuana use** | | | | |
| Prevalence | (0.06) | 0.16 | 0.09 | 0.09 |
| Log frequency | 0.12 | 0.17 | 0.10 | 0.10 |
| **Polydrug use** | | | | |
| Prevalence | 0.09 | 0.14 | 0.12 | 0.15 |
| Log frequency | 0.10 | 0.13 | 0.14 | 0.16 |
| **Problem drug use prevalence** | 0.09 | 0.13 | 0.14 | 0.17 |
| **Anxiety** | | | | |
| Ever-prevalence | (–0.00) | 0.07 | (0.01) | (0.03) |
| Past-year prevalence | (0.00) | (0.06) | (–0.01) | (0.00) |
| **Depression** | | | | |
| Ever-prevalence | 0.11 | 0.16 | 0.08 | 0.11 |
| Past-year prevalence | (0.02) | 0.16 | 0.08 | 0.07 |
| **Posttraumatic stress disorder** | | | | |
| Ever-prevalence | (0.01) | 0.18 | 0.10 | 0.12 |
| Past-year prevalence | (0.02) | 0.15 | 0.12 | 0.12 |

Note: All figures are cumulative (i.e., they reflect the respondents' total experiences from their first NYS interview as an adolescent through their last interview either as an adolescent or an adult). The figures are zero-order correlations (Pearson's *r* values), which means that each figure reflects a linear relationship between just two variables (e.g., prevalence of violent victimization and prevalence of felony assault), without accounting for any of the other variables. The figures in parentheses are neither statistically significant nor marginally significant (with $p \leq .05$ representing statistical significance and $p \leq .10$ representing marginal significance); all other figures (those not in parentheses) are at least marginally significant.

Prevalence refers to whether a respondent had a particular problem. Frequency refers to the number of times the respondent had the problem. Frequency data have been adjusted mathematically (by logarithmic transformation) to reduce their skewness (i.e., lack of symmetry in the distribution); the adjustment also gives more weight to lower frequencies, because lower frequency estimates of offending have been shown to be more reliable than higher frequency estimates in the NYS data (Huizinga and Elliott, 1986).

**Table 4: Adolescent Risk Factors for Adult Victimization, Offending, and Drug Use**

| Adult Problem Outcome (Dependent Variable) | $R_L^2$* | Adolescent Experience/Characteristic (Independent Variable) | Odds Ratio† | $p(lr)$‡ |
|---|---|---|---|---|
| Violent victimization ($n$=506) | 0.042 | Violent victimization | 2.2513 | 0.0001 |
| | | Age in 1976: 11 | 2.3190 | 0.0024 |
| | | 12 | 0.8596 | |
| | | 13 | 0.5016 | |
| | | Victimization-age interaction | 1.8335 | 0.0278 |
| Property victimization ($n$=507) | 0.012 | Property victimization | 1.9431 | 0.0045 |
| Domestic violence victimization ($n$=491) | 0.059 | Violent victimization | 1.7038 | 0.0537 |
| | | Violent offending (felony assault) | 1.4827 | 0.0960 |
| | | Male | 1.9231 | 0.0046 |
| | | Parents' socioeconomic status | 0.9780 | 0.0022 |
| Domestic violence perpetration ($n$=491) | 0.081 | Violent offending (felony assault) | 2.1013 | 0.0048 |
| | | Violent victimization | 1.7496 | 0.0479 |
| | | Male | 0.2269 | 0.0000 |
| Violent offending (felony assault) ($n$=496) | 0.148 | Violent offending (felony assault) | 3.7906 | 0.0000 |
| | | Violent victimization | 3.5361 | 0.0086 |
| | | Male | 2.2081 | 0.0196 |
| | | Parents' socioeconomic status | 0.9784 | 0.0303 |
| Property offending (felony theft) ($n$=505) | 0.119 | Property offending (felony theft) | 2.4893 | 0.0034 |
| | | Violent victimization | 2.8771 | 0.0115 |
| | | Male | 2.7919 | 0.0011 |
| | | Nonwhite | 2.1114 | 0.0377 |
| Marijuana use ($n$=505) | 0.085 | Marijuana use | 3.7469 | 0.0000 |
| | | Property victimization | 1.8716 | 0.0125 |
| Polydrug use ($n$=502) | 0.082 | Polydrug use | 1.7995 | 0.0525 |
| | | Marijuana use | 3.2670 | 0.0000 |
| Problem drug use ($n$=502) | 0.117 | Marijuana use | 1.7724 | 0.0431 |
| | | Polydrug use | 3.6031 | 0.0000 |
| | | Violent victimization | 1.8810 | 0.0378 |
| | | Male | 1.5918 | 0.0537 |

* $R_L^2$ (explained variation) indicates the strength of the relationship between each adult problem outcome and the set of adolescent predictors, taken as a group. It is the percentage reduction in error of prediction. For example, an $R_L^2$ of 0.117 for problem drug use indicates that it is possible to reduce the error in predicting adult problem drug use by 11.7 percent if it is known whether the respondent is male and whether he or she was a victim of violence, a marijuana user, or a polydrug user in adolescence.

† Odds ratios represent the factor by which to multiply the odds of a particular outcome for each predictor (e.g., being a victim of violence in adolescence multiplies the odds of being a problem drug user in adulthood by a factor of 1.88).

‡ The $p(lr)$ (the likelihood ratio criterion) indicates the extent to which the predictive effects of the adolescent variables are statistically significant. Backward stepwise elimination based on $p(lr)$ was used to remove effects that were neither statistically significant nor marginally significant (with $p \leq .05$ representing statistical significance and $p \leq .10$ representing marginal significance) from the model.

other variables in the analysis do not appear to affect property victimization in adulthood.

**Risk factors for adult domestic violence victimization and perpetration.** As shown in table 4, the odds of being a victim of domestic violence as an adult are increased by a factor of about 1.7 by being a victim of violent crime as an adolescent and by a factor of about 1.5 by being a perpetrator of such a crime as an adolescent. Similarly, the odds of being a perpetrator of domestic violence as an adult are increased by a factor of 1.7 by being a victim of violent crime as an adolescent and are doubled by being a perpetrator of violent crime as an adolescent. Being both a



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**Table 5: Adolescent Risk Factors for Adult Mental Health Problems**

| Adult Mental Health Problem (Dependent Variable) | $R_L^2$* | Adolescent Experience/Characteristic (Independent Variable) | Odds Ratio† | p(lr)‡ |
|---|---|---|---|---|
| Anxiety, ever (*n*=538) | 0.055 | Mental health problems | 2.8722 | 0.0139 |
| | | Age in 1976: 11 | 0.6199 | 0.0434 |
| | | 12 | 0.8267 | |
| | | 13 | 1.9514 | |
| Anxiety, 1992 (*n*=538) | 0.106 | Mental health problems | 3.7808 | 0.0114 |
| | | Age in 1976: 11 | 0.2604 | 0.0060 |
| | | 12 | 1.2528 | |
| | | 13 | 3.0649 | |
| Depression, ever (*n*=556) | 0.045 | Parent assessment of child as "messed up," "needs help," "has a lot of problems" | 1.1575 | 0.0008 |
| | | Male | 0.4393 | 0.0015 |
| Depression, 1992 (*n*=556) | 0.058 | Parent assessment of child as "messed up," "needs help," "has a lot of personal problems" | 1.1451 | 0.0372 |
| | | Mental health problems | 2.0100 | 0.0103 |
| | | Male | 0.4735 | 0.0169 |
| Posttraumatic stress disorder, ever (*n*=556) | 0.105 | Mental health problems | 2.1811 | 0.0175 |
| | | Violent victimization | 2.1528 | 0.0366 |
| | | Male | 0.3736 | 0.0020 |
| | | Parents' socioeconomic status | 0.9723 | 0.0040 |
| | | Age in 1976: 11 | 0.8495 | 0.0921 |
| | | 12 | 0.7569 | |
| | | 13 | 1.5552 | |
| Posttraumatic stress disorder, 1992 (*n*=556) | 0.101 | Mental health problems | 2.2905 | 0.0662 |
| | | Male | 0.3615 | 0.0250 |
| | | Parents' socioeconomic status | 0.9727 | 0.0472 |
| | | Age in 1976: 11 | 0.4301 | 0.0473 |
| | | 12 | 1.2801 | |
| | | 13 | 1.8161 | |

* $R_L^2$ (explained variation) indicates the strength of the relationship between each adult problem outcome and the set of adolescent predictors, taken as a group. It is the percentage reduction in error of prediction. For example, an $R_L^2$ of 0.105 for ever having posttraumatic stress disorder (PTSD) indicates that it is possible to reduce the error in predicting ever having PTSD if it is known whether the respondent is male, how old the respondent was in 1976, what the respondent's parents' socioeconomic status is, and whether the respondent was a victim of violence or had mental health problems in adolescence.

† Odds ratios represent the factor by which to multiply the odds of a particular outcome for each predictor (e.g., being a victim of violence in adolescence multiplies the odds of ever having PTSD by the time one reaches adulthood by a factor of 2.15).

‡ The *p*(lr) (the likelihood ratio criterion) indicates the extent to which the predictive effects of the adolescent variables are statistically significant. Backward stepwise elimination based on *p*(lr) was used to remove effects that were neither statistically significant nor marginally significant (with $p \leq .05$ representing statistical significance and $p \leq .10$ representing marginal significance) from the model.

perpetrator and a victim of violent crime during adolescence more than doubles the odds of being a victim of domestic violence in adulthood and more than triples the odds of being a perpetrator of domestic violence in adulthood.

Table 4 also shows that being male nearly doubles the odds of being a victim of domestic violence as an adult but decreases the odds of perpetrating domestic violence. This finding, although contrary to public perception, is consistent with findings of national surveys in the United States (Fagan and Browne, 1994; Morse, 1995) and New Zealand (Magdol et al., 1997). As Morse (1995) explains, females hit more often than males, but males do more damage when they hit. Morse's observation, together with the wide range of incidents included in the NYS definition of serious domestic violence (see sidebar on page 4), provides important context for interpreting the gender-related findings in this paragraph.

Table 4 also shows that having parents of lower socioeconomic status is associated with a slightly higher probability of being a victim of domestic violence as an adult. This association, although weak, is consistent with other research findings about domestic violence.

**Risk factors for adult violent offending.** As shown in table 4, being either a perpetrator or a victim of violent crime as an adolescent increases the odds of being a perpetrator of violent crime as an adult by a factor of about 3.5. Being both a perpetrator and a victim of violent crime as an adolescent increases the odds of perpetrating a violent crime as an adult by a factor of 13 (calculated by multiplying the odds ratio for the two risk factors). Being male doubles the odds of violent offending as an adult, and having parents of higher socioeconomic status slightly (but statistically significantly) decreases the odds of violent offending as an adult.

**Risk factors for adult property offending.** Table 4 shows that the odds of property offending as an adult are more than doubled by being a property offender as an adolescent and nearly tripled by being a victim of violent crime as an adolescent. Being male triples the odds of adult property offending. Being nonwhite doubles the odds of adult property offending (but does not affect the odds of adult violent offending).

**Risk factors for adult drug use.** As shown in table 4, marijuana use and property victimization during adolescence appear to be the only statistically significant risk factors for adult marijuana use. (Why property victimization should predict marijuana use is unclear; this relationship deserves further exploration.) Both marijuana use and polydrug use during adolescence are risk factors for both polydrug use and problem drug use in adulthood. Because polydrug use very rarely occurs without prior marijuana use (Elliott, Huizinga, and Menard, 1989), this relationship is to be expected. Although violent victimization during adolescence does not affect simple use of illicit drugs in adulthood, it nearly doubles the odds of problem use in adulthood. Being male increases the odds of problem drug use in adulthood by a factor of about 1.5.

**Socioeconomic status and race/ethnicity as risk factors for adult offending.** Given the findings regarding socioeconomic status (which affects adult violent offending but not adult property offending) and race/ethnicity (which affects adult property offending but not adult violent offending), it may be useful to explore these relationships in more detail in future research. The findings do reveal, however, at least a slight tendency for adult offenders to be drawn disproportionately from respondents who have suffered socioeconomic disadvantage or who are members of racial/ethnic minority groups. This conclusion contrasts with other findings that show no direct relationship between adolescent offending and either socioeconomic status or race/ethnicity (Elliott, Huizinga, and Menard, 1989). The full impact of socioeconomic disadvantage or minority group membership may not be realized until the adult years.

**Adolescent risk factors for mental health problems.** Table 5 shows that adult respondents who have been victims of violence during adolescence are twice as likely as others to report ever having had symptoms of PTSD. Violent victimization during adolescence is not, however, predictive of adult anxiety, depression, or past-year PTSD. This finding is consistent with the literature suggesting that PTSD is usually a short-term effect of violent victimization.

Table 5 also shows that adolescent mental health problems are predictive of all the adult mental health problems studied, as would be expected. In addition, age cohort appears to be predictive of adult anxiety and PTSD, gender is predictive of adult depression and PTSD (both are less common in males), and socioeconomic status is weakly predictive of PTSD (higher socioeconomic status was associated with slightly lower odds of adult PTSD).

**Continuity of problems.** Tables 4 and 5 show that, as expected, problem behaviors and experiences evidence continuity from adolescence to adulthood. For all of the adult problem outcomes analyzed in table 4, having a similar type of problem during adolescence is a risk factor. For example, violent offending during adolescence is related to both felony assault and domestic violence perpetration during adulthood, and both marijuana and polydrug use in adolescence are related to problem drug use in adulthood.[14] As shown in table 5, adolescent mental health problems, as assessed by respondents and by their parents, triple the odds of adult anxiety, double the odds of adult PTSD, and also increase the odds of adult depression.

**A summary of risk.** The "explained variation" ($R_L^2$) numbers in tables 4 and 5 all indicate only weak to moderate relationships between the independent variables (the predictors from adolescence) and the dependent variables (the adult problem outcomes). In other words, although the predictors matter, many individual respondents do not reflect the "average" pattern suggested by the logistic regression equations that are the basis of the tables. Even though considerable variation remains unexplained, individual predictors do have a substantial overall effect on the adult behaviors they predict. The figure on page 12 illustrates these effects by showing the percentage of adolescent victims of violence and nonvictims of violence who can expect to experience each of seven problem outcomes as adults, based on the results from tables 4 and 5.

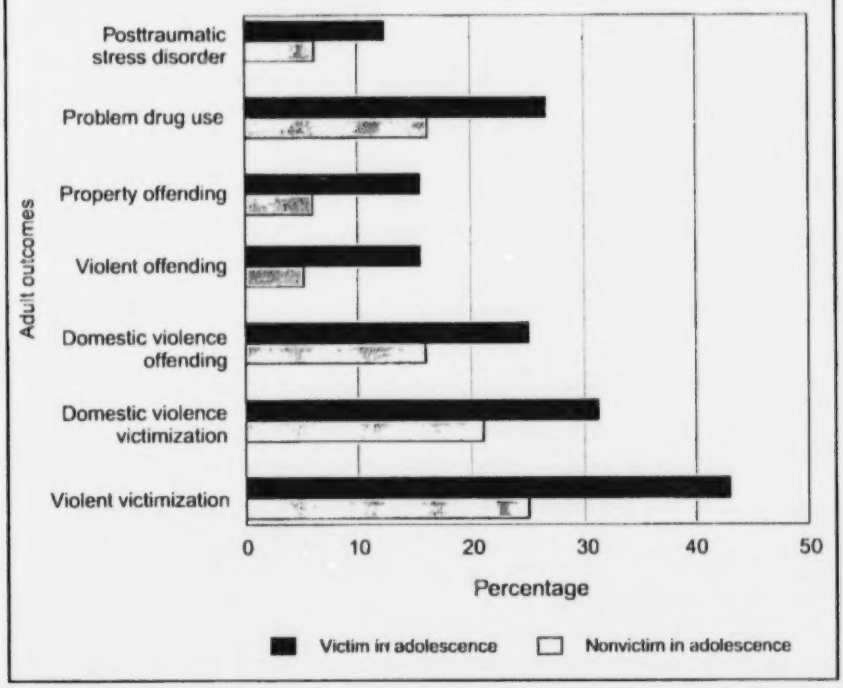
As shown in the figure, no more than 25 percent of nonvictims can expect to have any given adult problem outcome. The highest risk outcomes for nonvictims are violent crime victimization and domestic violence victimization. The lowest risk outcomes for nonvictims (about 5–6 percent) are PTSD, serious violent offending, and property offending. For adolescent victims of violence, the risk is at least 10 percent for each adult problem outcome, more than 40 percent for violent victimization, and more than 25 percent for problem drug use and domestic violence victimization and perpetration.

The figure indicates that, all other things being equal, adolescent victims of violence (compared with nonvictims) can be expected as adults to be 50 percent more likely to be victims of violent crimes and domestic violence, perpetrators of domestic violence, and problem drug users; twice as likely to experience PTSD; more than 2.5 times as likely to be serious property offenders; and 3 times as likely to be serious violent offenders.

## Adolescent Predictors of Adult Success

A more general indication of how violent victimization and other experiences during adolescence affect adult outcomes can be found by considering how these experiences are related to an index of successful transition to adulthood used in the MacArthur Chicago-Denver Neighborhood Project (Elliott et al., 1996; Elliott et al., forthcoming). The index defines adult success in terms of four criteria: employment or financial stability, conventional aspirations and beliefs, involvement in a support network of friends or family, and abstinence from serious criminal behavior and problem substance use. (For details of the criteria, see sidebar on page 12.) To be classified as a success, a respondent must meet all four criteria.

**Adolescent Victims and Nonvictims of Violence: Percentage Expected To Experience Adult Problem Outcomes**




Success as defined by these criteria was measured for the full NYS sample at wave 8 (ages 24–30) and wave 9 (ages 27–33). Approximately three-fourths of respondents had the same success classification in both waves; for the remaining one-fourth whose classification changed, the flows from failure to success and success to failure were roughly equal. The present analysis combines success measures for waves 8 and 9 into a single dependent variable (outcome measure) with three values: nonsuccess (not meeting the success criteria in either wave), unstable success (meeting the criteria in one wave but not the other), and stable success (meeting the criteria in both waves).[15]

The predictors in this analysis are the cumulative frequency (in adolescence) of violent victimization, property victimization, violent offending (felony assault), serious property offending (felony theft), alcohol use, marijuana use, and polydrug use; the cumulative prevalence of mental health problems as reported by the respondents; the prevalence of adolescent mental health problems as assessed by parents; sociodemographic characteristics, including gender, race/ethnicity, and socioeconomic status (based on parents' socioeconomic status during respondent's adolescence); age cohort (again, the analysis is limited to the three youngest cohorts); plus most recent grade-point average (wave 5 for most respondents) and the cumulative prevalence of adolescent employment.[16] Cumulative frequency (as opposed to cumulative prevalence) was used where possible because it resulted in better prediction of adult success.[17]

Table 6 shows two comparisons: nonsuccess versus stable success and unstable success versus stable success. For each comparison, odds ratios indicate the extent to which each independent variable (such as cumulative frequency of adolescent victimization) predicts either nonsuccess (as opposed to stable success) or unstable success (as opposed to stable success).

**Victimization.** As shown in table 6, violent victimization during adolescence predicts nonsuccess in adulthood, at a marginally significant ($p < .10$) level. Violent victimization is not quite a marginally significant predictor of success overall.

## Criteria for Successful Transition to Adulthood

- **Employment or financial stability.** Does not receive public assistance, is not involuntarily unemployed, and either is employed or is not employed but married to a spouse who is employed.
- **Conventional aspirations and beliefs.** Believes that it is wrong or very wrong to attack someone with the intent of seriously hurting them or killing them; hit or threaten to hit someone without any reason; deliberately hit and injure a spouse, boyfriend, or girlfriend; break into a vehicle or building to steal something; steal something worth more than $50; and sell hard drugs such as heroin, cocaine, and LSD. Also (for occupational-track respondents) believes that it is very important or somewhat important to have a good job or career, use abilities at work or career, earn an annual salary of at least $20,000, and graduate from college; or (for family-track respondents) believes that it is somewhat important or very important to get married, have children, and provide a good home for one's family.
- **Involvement in a conventional support network.** Meets one of the following four criteria: (1) married, remarried, or widowed (not separated, divorced, or never married), with no marital violence in the relationship; (2) involved in an intimate relationship, with no violence between partners and no encouragement by partner to do anything wrong; (3) involved with friends approximately once a week and not involved with a deviant peer group; or (4) involved with family approximately once a week. The respondent must also receive some level of warmth and affection and some level of support and encouragement from his or her spouse, other intimate partner, friends, or family.
- **Abstinence from serious criminal behavior and problem substance use.** Engages in no felony or other serious offending, is involved in minor criminal behavior no more than once a month, and has a maximum score of 3 on the problem substance use scale (less than once a month).

**Table 6: Adolescent Predictors of Adult Success**

| Adolescent Predictor | Global significance: $p$ (likelihood ratio)* | Adult Success Comparisons: Nonsuccess Versus Stable Success — Odds Ratio† | Nonsuccess Versus Stable Success — $p$ (Wald statistic)* | Unstable Success Versus Stable Success — Odds Ratio† | Unstable Success Versus Stable Success — $p$ (Wald statistic)* |
|---|---|---|---|---|---|
| Violent victimization‡ | 0.109 | 1.376 | 0.097 | 0.905 | 0.555 |
| Property victimization‡ | 0.748 | 0.856 | 0.516 | 1.028 | 0.885 |
| Violent offending (felony assault)‡ | 0.086 | 1.800 | 0.040 | 1.093 | 0.733 |
| Property offending (felony theft)‡ | 0.943 | 1.036 | 0.913 | 1.104 | 0.737 |
| Alcohol use‡ | 0.278 | 0.795 | 0.119 | 0.967 | 0.769 |
| Marijuana use‡ | 0.008 | 1.508 | 0.004 | 1.284 | 0.037 |
| Polydrug use‡ | 0.294 | 0.771 | 0.160 | 0.803 | 0.197 |
| Mental health problems§ (self-report) | 0.866 | 0.854 | 0.730 | 1.092 | 0.817 |
| Mental health problems‖ (parent assessment) | 0.458 | 1.060 | 0.397 | 1.065 | 0.242 |
| Male gender | 0.182 | 1.570 | 0.222 | 1.671 | 0.084 |
| Nonwhite race/ethnicity | 0.155 | 2.246 | 0.083 | 1.808 | 0.134 |
| Socioeconomic status | 0.233 | 0.979 | 0.091 | 0.995 | 0.593 |
| Age | 0.678 | 0.932 | 0.719 | 1.100 | 0.536 |
| Most recent grade point average | 0.029 | 0.558 | 0.010 | 0.766 | 0.145 |
| Adolescent employment§ | 0.104 | 4.948 | 0.161 | 0.660 | 0.457 |
| Intercept¶ | 0.271 | 0.072 | 0.121 | 0.480 | 0.540 |

Note: The $R_L^2$ (explained variation) for table 6 (0.127) indicates the strength of the relationship between adult success and the set of adolescent predictors, taken as a group. It is the percentage reduction in error of prediction. The $R_L^2$ of 0.127 indicates that it is possible to reduce the error in predicting adult success by 12.7 percent if all of the adolescent predictors listed in the table are known.

* The likelihood ratio criterion, $p$(lr), indicates the extent to which the predictive effects of the adolescent variables are statistically significant, either for the model as a whole (global significance) or for a particular comparison (nonsuccess versus stable success, or unstable success versus stable success). One way to interpret $p$(lr) is to think of it as the probability that the observed effect is just a coincidence, as opposed to a real effect of the adolescent predictor on the adult outcome. Effects are considered statistically significant if $p \leq .05$ or marginally significant if $p \leq .10$; if $p$ is greater than .10, one cannot be certain whether the effect in the table represents a real impact of the predictor on the outcome, as opposed to random variation or coincidence.

† Odds ratios represent the factor by which to multiply the odds of a particular outcome for each predictor (e.g., being a victim of violence in adolescence multiplies the odds of nonsuccess as opposed to stable success in adulthood by a factor of 1.376).

‡ Cumulative frequency.

§ Cumulative prevalence.

‖ Prevalence.

¶ The intercept is the expected value of the outcome (actually, the natural logarithm of the odds of the outcome) if the values of all the predictors are zero.

**Illegal behaviors.** Of the adolescent illegal behaviors measured, frequency of felony assault offending and marijuana use are the best (and the only statistically significant) predictors of adult success. Both are significantly associated with higher odds of nonsuccess; marijuana use is also significantly associated with higher odds of unstable success. This finding may result in part from the continuity of illegal behavior from adolescence to adulthood, as described earlier (see page 11).

**Mental health problems.** Adolescent mental health problems are not statistically significant predictors of adult success.

**Sociodemographic characteristics.** Being male is a marginally significant predictor of unstable success. Males are about 1.5 times more likely than females to experience unstable success. Being of minority racial/ethnic status and being from lower socioeconomic status both are marginally significant predictors of nonsuccess, a finding consistent with a long history of research on social stratification (e.g., Blau and Duncan, 1967; Wilson, 1987). None of the sociodemographic measures was a significant predictor of success overall.

**Grade-point average and employment.** Having a lower grade-point average is a statistically significant predictor of nonsuccess. Adolescent employment is the only variable with a marginally significant effect on success overall but not on either nonsuccess or unstable success. (It nonsignificantly increases the odds of nonsuccess but decreases the odds of unstable success.)

**Summary.** Nonsuccess as an adult is more likely for individuals who as adolescents were frequent victims of violence, perpetrators of violent offenses, and marijuana users. Nonsuccess is also more likely for minorities and persons with a lower socioeconomic background. Less stable patterns

of adult success are found for males and marijuana users. Employment in adolescence appears to be more of a disadvantage than an advantage, although it is an advantage for some.

In table 6, as in tables 4 and 5, the level of explained variation ($R_L^2 = 0.127$) is fairly modest. This indicates considerable variation from the "average" pattern with regard to the predictors of success.

## Conclusion

Consistent with theory and past research, the findings of the current study show that violent victimization during adolescence has a pervasive effect on problem outcomes in adulthood. It increases the odds of being a perpetrator or victim of violence in adulthood, including felony assault perpetration and victimization (by factors of 3.5 and 2.3, respectively) and domestic violence perpetration and victimization (by a factor of 1.7). It nearly doubles the odds of problem drug use in adulthood and of ever experiencing PTSD. It also increases the odds of adult property offending. The risks posed by violent victimization during adolescence persist even when controls are introduced for sociodemographic characteristics and prior problems in adolescence.

Frequency of adolescent violent victimization is also a risk factor for failure to make a successful transition from adolescence to adulthood. This effect is found even under broad, relatively minimal definitions of "success" (such as good interpersonal relationships, lack of welfare dependency, and reasonably conforming attitudes and behavior) and is above and beyond the effect of other risk factors for lack of success, such as minority race/ethnicity, lower socioeconomic background, adolescent violent offending, and adolescent drug use.

In addition, victimization, particularly violent victimization, has a substantial impact in terms of financial loss (in property victimization), physical injury (in violent victimization), and short-term associations with other problem behaviors and outcomes. These effects are found during both adolescence and adulthood.

Considered in combination, three factors—the direct costs of victimization in terms of financial loss and physical injury, the high rate of violent victimization in adolescence, and the pervasive effects of adolescent violent victimization in later life—strongly suggest the need for interventions to reduce violent victimization during adolescence. If such interventions are successful, the result should be substantial financial, health, and behavioral benefits in both the short and long term.

## Endnotes

1. NCVS data provide only limited coverage of domestic violence victimization, including spouse abuse and child abuse. (See the NCVS sidebar on page 2).

2. Certain problems are not easily categorized as voluntary or involuntary. For example, illicit drug use may be purely voluntary or it may reflect a condition of dependence or addiction that could be regarded as involuntary or only partially voluntary.

3. Plans are currently under way to collect additional NYS data in 2001 and 2002.

4. Pickpocket and purse-snatching victimization were added in wave 3.

5. In earlier waves, the study distinguished between being beaten up by parents and being beaten up by someone else; in later waves, as respondents moved out of their parents' homes, this distinction was dropped in the wording of the questions but retained in the followup questions to the victimization items (i.e., respondents were asked by whom they were victimized, with parents as one possible category of perpetrator).

6. The approach described in note 5 for questions about being beaten up was also used for questions about being attacked with a weapon.

7. The nondomestic violent offending scale of the NYS may include some domestic violence offenses, but as indicated in Mihalic and Elliott (1997), domestic violence is seriously underreported when questions ask about general offending and victimization and do not specifically refer to violence involving a spouse or partner.

8. The NYS collected data on domestic violence by using the Conflict Tactics Scale (Straus and Gelles, 1990), which includes a range of behaviors from nonphysical aggression to life-threatening physical violence. This analysis limits its consideration of domestic violence to the most serious forms, i.e., those roughly comparable to the items in the NYS felony assault and violent victimization scales.

9. See note 8. Because few respondents ages 11–17 were married, the analysis of serious domestic violence victimization uses the more general felony assault measure to control for prior violence.

10. The problem drug use scale was not administered to the full NYS sample until wave 4 (1979); therefore, the analysis uses prevalence of marijuana and polydrug use during adolescence as predictors for problem drug use during adulthood.

11. Beginning with the data for 1983, a subset of the *Diagnostic Interview Schedule* or *DIS* (Robins et al., 1981) was administered to adult respondents (age 18 and over), specifically to diagnose depression. In the last wave (1992), this subset was expanded to include anxiety, PTSD, obsessive-compulsive behavior, and schizophrenia. (The prevalence of the last two disorders, however, was too small for analysis.) Researchers did not administer the *DIS* to adolescents, but rather asked them whether they felt socially isolated or alienated from others and whether they thought that others perceived them as sick, disturbed, or in need of help. The mental health problem scale used with adolescents is described in detail by Elliott and colleagues (1989). In the first wave (1976), researchers also asked parents whether they thought their child was sick, disturbed, or in need of help.

12. In the context of adult victimization, adolescent victimization is both a possible predictor and a prior problem condition. The analysis of adult victimization, therefore, should be regarded as simply an examination of the continuity of victimization from adolescence to adulthood.

13. Both prevalence and frequency measures are available in NYS data for adult and adolescent violent and property victimization, violent offending (felony assault), serious property offending (felony theft), marijuana use, and polydrug use. However, only prevalence measures and ordinal, Likert-type scale scores (as described by Elliott, Huizinga, and Menard [1989]) are available for adult domestic violence victimization and offending and for adult and adolescent problem drug use and mental health problems, and the ordinal scale scores do not necessarily correspond to the frequency scales used for the victimization and offending measures.

14. The impacts of adolescent marijuana use on adult polydrug use and of adolescent polydrug use on adult problem drug use appear to reflect developmental patterns—entry into behaviors that are not just risk factors for, but nearly prerequisites to, similar adult behaviors (Elliott, Huizinga, and Menard, 1989).

15. The measure of adult success used in this analysis obviously is a general, summary measure at a fairly minimal level. One alternative would be to analyze adult success separately for the criteria that are the basis of this measure and for other criteria. It would also be possible to measure adult success as a matter of degree, rather than simply as a yes or no outcome. Such analyses are beyond the scope of the present study, however, and are left to future research.

16. The academic and employment variables were added because Elliott and colleagues (forthcoming) found them to be predictive of adult success.

17. On a technical note, models that treated success as both an ordered and an unordered dependent variable were considered, and the

model with the best accuracy of prediction (as measured by $R_L^2$) was selected for presentation in table 6. There were minor differences in the statistical significance of some predictors in the different models, but these differences are not discussed in detail here and would make little or no difference in the conclusions reached.

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This research was supported in part by grants from the Antisocial and Violent Behavior Branch, National Institute of Mental Health (MH27552) and the Office of Juvenile Justice and Delinquency Prevention, U.S. Department of Justice (78–JN–AX–003) and an interagency agreement between the Office of Juvenile Justice and Delinquency Prevention and the Centers for Disease Control and Prevention (1999–JN–FX–K006).

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*The Office of Juvenile Justice and Delinquency Prevention is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the National Institute of Justice, and the Office for Victims of Crime.*

**Acknowledgments**

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